

Total Terrestrial Gamma Activity Polygons for an Aerial Radiological Survey of Abandoned Uranium Mines on the Navajo Nation



Data format: Shapefile

File or table name: NN_Gross_Count_Polys

Coordinate system: Geographic

Theme keywords: Ground Surface Exposure Rate, Aerial Gross Counts Polygons, Total Terrestrial Gamma Activity, Aerial Radiological Surveys, Gamma Radiation

Abstract: This polygon shapefile presents ranges of ground surface exposure rate from total terrestrial gamma activity, and calculated from aerial gross count data (all gamma events in the range of 38-3026 keV). Forty one (41) aerial radiological surveys of potential uranium mining areas (1,144 square miles) were conducted within the Navajo Nation during the period from October 1994 through October 1999. The US Environmental Protection Agency (USEPA) Region 9 funded the surveys and the US Department of Energy (USDOE) Remote Sensing Laboratory (RSL) in Las Vegas, Nevada conducted the aerial surveys. The aerial survey data were used to characterize the overall radioactivity (ground surface exposure rate) and excess Bismuth 214 levels within the surveyed areas.

FGDC and ESRI Metadata:

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- [Data Quality Information](#)
- [Spatial Data Organization Information](#)
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Metadata elements shown with blue text are defined in the Federal Geographic Data Committee's (FGDC) [Content Standard for Digital Geospatial Metadata \(CSDGM\)](#). Elements shown with green text are defined in the [ESRI Profile of the CSDGM](#). Elements shown with a green asterisk (*) will be automatically updated by ArcCatalog. ArcCatalog adds hints indicating which FGDC elements are mandatory; these are shown with gray text.

Identification Information:

Citation:

Citation information:

Originators: Thane Hendricks, Bechtel Nevada, USDOE Remote Sensing Laboratory

Title:

Total Terrestrial Gamma Activity Polygons for an Aerial Radiological Survey of Abandoned Uranium Mines on the Navajo Nation

***File or table name:** NN_Gross_Count_Polys

Publication date: July 2007

***Geospatial data presentation form:** vector digital data

Publication information:

Publication place: Las Vegas, NV

Publisher: U.S. Department of Energy

Other citation details:

For a detailed description of this survey of the Navajo Nation, see the DOE report: "DOE/NV11718--602" Skey for this document is S03310309.

***Online linkage:**

\\Terra_dc\Navajo\NAUM_NN_Summary\DB\Radiation\NN_Gross_Count_Polys.shp

Description:

Abstract:

This polygon shapefile presents ranges of ground surface exposure rate from total terrestrial gamma activity, and calculated from aerial gross count data (all gamma events in the range of 38-3026 keV). Forty one (41) aerial radiological surveys of potential uranium mining areas (1,144 square miles) were conducted within the Navajo Nation during the period from October 1994 through October 1999. The US Environmental Protection Agency (USEPA) Region 9 funded the surveys and the US Department of Energy (USDOE) Remote Sensing Laboratory (RSL) in Las Vegas, Nevada conducted the aerial surveys. The aerial survey data were used to characterize the overall radioactivity (ground surface exposure rate) and excess Bismuth 214 levels within the surveyed areas.

Purpose:

This dataset was developed to support the U.S. Environmental Protection Agency (USEPA) in its undertaking of an extensive scientific study to determine if abandoned uranium mines (AUM) and related mine features pose a significant risk to human health and the environment, and to identify areas requiring action to reduce risk for the Navajo Nation.

***Language of dataset:** en

Time period of content:

Time period information:

Range of dates/times:

Beginning date: October, 1994

Ending date: October, 1999

Currentness reference:

ground condition

Status:

Progress: Complete

Maintenance and update frequency: None planned

Spatial domain:

Bounding coordinates:

***West bounding coordinate:** -111.780543

***East bounding coordinate:** -108.972101

***North bounding coordinate:** 37.160006

***South bounding coordinate:** 35.007696

Local bounding coordinates:

- ***Left bounding coordinate:** -111.780543
- ***Right bounding coordinate:** -108.972101
- ***Top bounding coordinate:** 37.160006
- ***Bottom bounding coordinate:** 35.007696

Keywords:**Theme:**

Theme keywords: Ground Surface Exposure Rate, Aerial Gross Counts Polygons, Total Terrestrial Gamma Activity, Aerial Radiological Surveys, Gamma Radiation

Theme keyword thesaurus: None

Place:

Place keywords: Navajo Nation, Arizona, New Mexico, Utah, United States

Place keyword thesaurus: None

Access constraints: None.

Use constraints:

Ground surface exposure rate measures total gamma radiation activity without considering constituent isotopic sources. 1144 square miles of the more than 25,000 square mile Navajo Nation were surveyed. This area does not include all areas that may have had uranium mining. Specifically, these surveys do not include the Grants Uranium District that is partially on the Eastern Agency of the Navajo Nation.

Use of this data generally requires computer workstations with ESRI's Arc/Info (8.x or above), ArcGIS (8.x or above), or ArcView (3.x), or some other GIS or CAD software that is capable of reading or converting this dataset.

The data are provided "as-is," without warranty of any kind, either express or implied.

These data have been compiled as part of a desktop project to collect existing spatial data to support the study of Navajo abandoned uranium mines. No field verifications were undertaken as part of this desktop study.

Point of contact:**Contact information:****Contact organization primary:**

Contact organization: U. S. Environmental Protection Agency, Region 9, Superfund Program

Contact address:

Address type: mailing and physical address

Address:

75 Hawthorne St (SFD 8-2)

City: San Francisco

State or province: CA

Postal code: 94105

Country: USA

Contact voice telephone: 415-972-3167

Security information:

Security classification system: None

***Native dataset format:** Shapefile

***Native data set environment:**

Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 9.1.0.780

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Data Quality Information:**Attribute accuracy:****Attribute accuracy report:**

Attribute data are from the source data.

Logical consistency report:

This shapefile was build first as a polygon coverage with full polygons and line topology, and then exported to this polygon shapefile.

Completeness report:

Ground surface exposure rate measures total gamma radiation activity without considering constituent isotopic sources. 1144 square miles of the more than 25,000 square mile Navajo Nation were surveyed. This area does not include all areas that may have had uranium mining. Specifically, these surveys do not include the Grants Uranium District that is partially on the Eastern Agency of the Navajo Nation.

Positional accuracy:**Horizontal positional accuracy:****Horizontal positional accuracy report:**

Attribute data are from the source data.

Lineage:**Process step:****Process description:**

The shapefiles NN_Flight_Areas.shp and NN_Gross_Count_Contours.shp were converted to coverages and merged as a single line coverage. The resulting coverage was edited topological errors and built as a polygon coverage. "GROSSCOUNT" and "ExpoRate" attributes were populated based upon the contour attributes in NN_Gross_Count_Contours.shp. "Name" and "Region" attributes were populated from NN_Flight_Areas.shp.

Process software and version: ESRI ArcGIS 9.1

Process date: July 2007

Process contact:**Contact information:****Contact organization primary:**

Contact organization: TerraSpectra Geomatics

Contact address:

Address type: mailing and physical address

Address:

2700 E Sunset Rd, Ste A-10

City: Las Vegas

State or province: NV

Postal code: 89120

Country: USA

Contact voice telephone: 702-795-8254

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Spatial Data Organization Information:

*Direct spatial reference method: Vector

Point and vector object information:

SDTS terms description:

- *Name: NN_Gross_Count_Polys
- *SDTS point and vector object type: G-polygon
- *Point and vector object count: 14062

ESRI terms description:

- *Name: NN_Gross_Count_Polys
- *ESRI feature type: Simple
- *ESRI feature geometry: Polygon
- *ESRI topology: FALSE
- *ESRI feature count: 14062
- *Spatial index: TRUE
- *Linear referencing: FALSE

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Spatial Reference Information:

Horizontal coordinate system definition:

Coordinate system name:

- *Geographic coordinate system name: GCS_North_American_1983

Geographic:

- *Latitude resolution: 0.000000
- *Longitude resolution: 0.000000
- *Geographic coordinate units: Decimal degrees

Geodetic model:

- *Horizontal datum name: North American Datum of 1983
- *Ellipsoid name: Geodetic Reference System 80
- *Semi-major axis: 6378137.000000
- *Denominator of flattening ratio: 298.257222

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Entity and Attribute Information:

Detailed description:

- *Name: NN_Gross_Count_Polys

Entity type:

- *Entity type label: NN_Gross_Count_Polys

***Entity type type:** Feature Class

***Entity type count:** 14062

Attribute:

***Attribute label:** FID

***Attribute alias:** FID

***Attribute definition:**
Internal feature number.

***Attribute definition source:**
ESRI

***Attribute type:** OID

***Attribute width:** 4

***Attribute precision:** 0

***Attribute scale:** 0

Attribute domain values:

***Unrepresentable domain:**
Sequential unique whole numbers that are automatically generated.

Attribute:

***Attribute label:** Shape

***Attribute alias:** Shape

***Attribute definition:**
Feature geometry.

***Attribute definition source:**
ESRI

***Attribute type:** Geometry

***Attribute width:** 0

***Attribute precision:** 0

***Attribute scale:** 0

Attribute domain values:

***Unrepresentable domain:**
Coordinates defining the features.

Attribute:

***Attribute label:** AREA

***Attribute alias:** AREA

***Attribute type:** Number

***Attribute width:** 19

***Attribute number of decimals:** 11

Attribute:

***Attribute label:** PERIMETER

***Attribute alias:** PERIMETER

***Attribute type:** Number

***Attribute width:** 19

***Attribute number of decimals:** 11

Attribute:

***Attribute label:** GROSSCOUNT

***Attribute alias:** GROSSCOUNT

***Attribute type:** Number

***Attribute width:** 9

Attribute:

***Attribute label:** ExpoRate

***Attribute alias:** ExpoRate

***Attribute type:** String

***Attribute width:** 15

Attribute:

***Attribute label:** Name

***Attribute alias:** Name

***Attribute type:** String

***Attribute width:** 30

Attribute:

***Attribute label:** Region

***Attribute alias:** Region

***Attribute type:** String

***Attribute width:** 30

Overview description:

Dataset overview:

There are 14,062 polygons.

Entity and attribute overview:

Area is in square meters.

Perimeter is in meters.

There are four thematic attributes:

GROSSCOUNT - range of gross counts in keV

ExpoRate - range of exposure rates in $\mu\text{R/hr}$

Name - Flight area name

Region - Region in which the flight area is located

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Distribution Information:

Distributor:

Contact information:

Contact organization primary:

Contact organization: U. S. Environmental Protection Agency, Region 9,
Superfund Records Center

Contact address:

Address type: mailing address

Address:

95 Hawthorne St (SFD-7C)

City: San Francisco
State or province: CA
Postal code: 94105
Country: USA

Contact voice telephone: 415-536-2033

Resource description: Downloadable Data

Distribution liability:

Although these data have been processed successfully on a computer system for the USEPA, no warranty expressed or implied is made by the USEPA or its contractors regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. No responsibility is assumed by USEPA or its contractors in the use of these data.

Standard order process:

Digital form:

Digital transfer information:

***Transfer size:** 18.813

***Dataset size:** 18.813

Custom order process:

Contact the USEPA for a custom order.

Technical prerequisites:

Use of this data generally requires computer workstations with ESRI's Arc/Info (8.x or above), ArcGIS (8.x or above), or ArcView (3.x), or some other GIS or CAD software that is capable of reading or converting this dataset.

Available time period:

Time period information:

Single date/time:

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Metadata Reference Information:

***Metadata date:** 20070731

***Language of metadata:** en

Metadata contact:

Contact information:

Contact person primary:

Contact person: Andrew Bain

Contact organization: U. S. Environmental Protection Agency, Region 9, Superfund Program

Contact position: Project Manager

Contact address:

Address type: mailing and physical address

Address:

75 Hawthorne St (SFD 8-2)

City: San Francisco

State or province: CA

Postal code: 94105

Country: USA

Contact voice telephone: 415-972-3167

***Metadata standard name:** FGDC Content Standards for Digital Geospatial Metadata

***Metadata standard version:** FGDC-STD-001-1998

***Metadata time convention:** local time

Metadata access constraints: None.

Metadata use constraints:

None.

Metadata security information:

Metadata security classification system: None

Metadata extensions:

***Online linkage:** <http://www.esri.com/metadata/esriprof80.html>

***Profile name:** ESRI Metadata Profile

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Binary Enclosures:

Thumbnail:

Enclosure type: Picture



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